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09/512,384	02/25/2000	Osamu Ohnishi	040447/0211	7238

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EXAMINER

ODOM, CURTIS B

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 04/17/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/512,384

Applicant(s)

OHNISHI, OSAMU

Examiner

Curtis B. Odom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. Figure 6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

2. The abstract of the disclosure is objected to because of the following:

a. On line 1, the phrase "Provided is an apparatus" is suggested to be changed to "An apparatus is provided".

b. On lines 4-5 and 11, the phrase "memories as many as M" is suggested to be changed to "M memories".

c. On lines 5-6, the phrase "samples...as many as L X N" is suggested to be changed to "L X N samples...correlation signal".

d. On lines 6 and 11-12, the phrase "input terminals as many as M" is suggested to be changed to "M input terminals".

Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities:

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a. On page 5, lines 12-13 and 19, the phrase “memories as many as M” is suggested to be changed to “M memories”.

b. On page 5, lines 13-14, the phrase “samples...as many as L X N” is suggested to be changed to “L X N samples...correlation signal”.

c. On page 5, lines 14 and 19-20, the phrase “input terminals as many as M” is suggested to be changed to “M input terminals”.

d. On page 6, line 1, the phrase “multipliers as many as M” is suggested to be changed to “M multipliers”.

Appropriate correction is required.

### *Claim Objections*

4. Claims 1 and 18 are objected to because of the following informalities:

a. The phrase “memories as many as M” is suggested to be changed to “M memories”.

b. The phrase “samples...as many as L X N” is suggested to be changed to “L X N samples...correlation signal”.

Appropriate correction is required.

5. Claim 2 is objected to because of the following informalities: The phrase “multipliers as many as M” is suggested to be changed to “M multipliers”.

Appropriate correction is required.

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6. Claim 18 is objected to because of the following informalities: The phrase "reading samples as many as L X N" is suggested to be changed to "reading L XN samples".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Claims 6, 9, 12, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Dabak et al. (U.S. Patent No. 6, 345, 069).

Regarding claim 6, Dabak et al. discloses an apparatus for detecting a correlation (Fig. 2B and Fig. 8) comprising:

an accumulator (Fig. 2B, block 220, column 4, lines 66-67 and column 5, lines 1-13) which inputs a reception signal to output a first correlation signal in response to the reception

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signal, the first and correlation signal including first data and second data following the second data (column 6, lines 44-48), wherein sending data serially means that data is sent in order as oppose to simultaneously;

a first memory (Fig. 8, block 810, column 6, lines 46-48) which stores the first data included in the first correlation signal;

a second memory (Fig. 8, block 811, column 6, lines 46-48) which stores the second data included in the first correlation signal; and

an adder (Fig. 8, block 828);

wherein the first data is supplied to the adder in a first period when the first data is written to the first memory (column 6, lines 48-53), wherein an addressable memory could be used to write the data into memory and a shift register could be used to supply the data to the adder during a first period (column 6, lines 59-65);

wherein the second data and the first data which have been stored in the first memory are supplied to the adder in a second period when the second data are written to the second memory (column 6, lines 48-53), wherein an addressable memory could be used to write the data into memory and a shift register could be used to supply the data to the adder during a second period (column 6, lines 59-65); and

wherein an output of the adder is outputted as a final correlation signal (column 6, lines 54-55), wherein the match signal is the correlation signal.

Regarding claim 9, Dabak et al. discloses a spectrum despread apparatus comprising the apparatus according to claim 6 (Fig. 2B, column 4, lines 66-67 and column 5, lines 1-13),

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wherein the PN signals generated by the device are used to despread a received spread spectrum signal (column 5, lines 5-13).

Regarding claim 12, Dabak et al. discloses a reception terminal comprising the apparatus according to claim 6 (Fig. 2B, column 4, lines 66-67).

Regarding claim 15, Dabak et al. discloses a transmission/reception terminal comprising the apparatus according to claim 6 (Figs. 2A and 2B, column 4, lines 66-67)

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5, 7, 8, 10, 11, 13, 14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (U.S. Patent No 5, 903, 595) in view of Dabak et al. (U.S. Patent No. 6, 345, 069).

Regarding claim 1, Suzuki discloses an apparatus for detecting a correlation of samples (Fig. 1, column 2, lines 65-67 and column 3, lines 1-4), the samples being obtained by sampling a spread spectrum signal in a range of one symbol period with a over-sampling rate which is N-fold of a chip rate (column 9, lines 32-35 and 46-50, wherein  $N=2$ ), wherein N is an integer larger than zero, the spread code being L X M period per symbol (column 2, lines 2-8), wherein L and M are integers larger than one (column 1, lines 30-39, wherein one spread code time is

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256), the spectrum spread signal having been spread in spectrum by the spread code signal (column 5, lines 21-23), the apparatus comprising:

M memories (Fig. 1, block 6 and Fig. 2, column 5, lines 54-66), each of which stores samples;

an adder (Fig. 1, block 10, column 6, lines 21-26) which has M input terminals and inputs from each of the input terminals the samples which are outputted from a corresponding memory among the memories; and

a controller (Fig. 1, block 11, column 5, lines 54-60) which supplies the samples to the M memories and to the M input terminals of the adder in rotation with a unit of samples (column 5, lines 54-60), and reads, and supplies to each of the input terminal of the adder, the samples which have been stored in each of the memories M-1 times (Fig. 2, column 6, lines 2-10);

wherein an output of the adder is outputted as a correlation signal outputted from the apparatus (column 6, lines 24-27).

Sukuki does not disclose an L-chip accumulator which inputs the samples to generate and output an intermediate correlation signal.

However, Dabak et al. discloses an L-chip accumulator (Fig. 2B, block 220, column 4, lines 66-67 and column 5, lines 1-13) which inputs samples to generate and output an intermediate correlation signal (column 6, lines 42-46). The accumulator of Dabak et al. outputs an intermediate correlation signal to a device (Fig. 8) which outputs a final correlation signal (column 6, lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the correlation detection device of Suzuki with the L-chip accumulator of Dabak et al. in order to give the device of Suzuki synchronization



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capability with transmission devices such as WCDMA devices. WCDMA is a technology with high transmission bandwidths which allows for relatively high data transference speeds.

WCDMA can support mobile / portable voice, images, data and video communications up to 2 Mbps (local area access) or 384 Kbps (wide area access).

Regarding claim 2, which inherits the limitations of claim 1, Suzuki further discloses:

M multipliers (Fig. 1, block 12, column 6, lines 21-25), each of which is connected with each of the memories and the input terminals of the adder; and

a coefficient generator (Fig. 1, block 7, column 6, lines 11-13) which generates coefficients of the multipliers;

wherein each of the coefficients changes cyclically in a unit of  $L \times N$  for of a period corresponding to the oversampling rate (column 5, lines 56-66), wherein the spread code are the coefficients which are also cyclically displace from each other one by one to an order of sampling.

Regarding claim 3, which inherits the limitations of claim 1, Suzuki further discloses wherein the memories are one port type of memories (Fig. 2), wherein the memories have only one input port.

Regarding claim 4, which inherits the limitations of claim 1, Dabak et al. further discloses the L-chip accumulator is a matching filter (Fig. 2B, block 220, MF). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the correlation detection device of Suzuki with the matched filter of Dabak et al. in order to give the device of Suzuki synchronization capability with transmission devices such as WCDMA devices. WCDMA is a technology with high transmission bandwidths which allows

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for relatively high data transference speeds. WCDMA can support mobile / portable voice, images, data and video communications up to 2 Mbps (local area access) or 384 Kbps (wide area access).

Regarding claim 5, which inherits the limitations of claim 1, Dabak et al. further discloses the L-chip accumulator is a matching filter (Fig. 2B, block 220, MF), but does not disclose the L-chip accumulator is a correlator bank. However, it would have been obvious to one of ordinary skill in the art at the time the invention was that the L-chip accumulator could have been a correlator bank since it performs the same function as the matched filter in that they both provide a correlation signal to allow synchronization between transmission/reception devices. Therefore, the use of a correlator bank to perform this function is deemed a design choice and does not constitute patentability.

Regarding claim 7, Suzuki discloses an apparatus for detecting correlation (Fig. 1, column 2, lines 65-67 and column 3, lines 1-4), comprising:

a plurality of memories (Fig. 1, block 6 and Fig. 2, column 5, lines 54-66), each of the memories stores a first signal in a respective prescribed period;

an adder (Fig. 1, block 10, column 6, lines 21-26) which inputs the signals from the plurality of memories; and

a controller (Fig. 1, block 11, column 5, lines 54-60) which supplies the first signals which have been stored in memories other than a first memory among the plurality of memories when the first signal is written to the first memory (Fig. 2, Storage Site 2...Storage Site N).

Sukuki does not disclose an L-chip accumulator which outputs a first correlation signal in response to a reception signal.

However, Dabak et al. discloses an L-chip accumulator (Fig. 2B, block 220, column 4, lines 66-67 and column 5, lines 1-13) which inputs samples to generate and output an intermediate correlation signal (column 6, lines 42-46). The accumulator of Dabak et al. outputs an intermediate correlation signal to a device (Fig. 8) which outputs a final correlation signal (column 6, lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the correlation detection device of Suzuki with the L-chip accumulator of Dabak et al. in order to give the device of Suzuki synchronization capability with transmission devices such as WCDMA devices. WCDMA is a technology with high transmission bandwidths which allows for relatively high data transference speeds. WCDMA can support mobile / portable voice, images, data and video communications up to 2 Mbps (local area access) or 384 Kbps (wide area access).

Regarding claim 8, which inherits the limitations of claim 1, Suzuki further discloses a spectrum despread apparatus comprising the apparatus (Fig. 1, column 5, lines 21-23), wherein the spread code despreads the received spread spectrum signal.

Regarding claim 10, which inherits the limitations of claim 7, Suzuki further discloses a spectrum despread apparatus comprising the apparatus (Fig. 1, column 5, lines 21-23), wherein the spread code despreads the received spread spectrum signal.

Regarding claim 11, which inherits the limitations of claim 1, Suzuki further discloses a reception terminal comprising the apparatus (Fig. 1, column 1, lines 4-6).

Regarding claim 13, which inherits the limitations of claim 7, Suzuki further discloses a reception terminal comprising the apparatus (Fig. 1, column 2, lines 4-6).

Regarding claim 14, which inherits the limitations of claim 1, Suzuki further discloses a transmission/reception terminal comprising the apparatus (column 1, lines 4-6), wherein the spread spectrum communication system is a transmission/reception terminal.

Regarding claim 16, which inherits the limitations of claim 7, Suzuki further discloses a transmission/reception terminal comprising the apparatus (column 1, lines 4-6), wherein the spread spectrum communication system is a transmission/reception terminal.

Regarding claim 17, Suzuki discloses a method of detecting a correlation of samples with a spread code (Fig. 1, column 2, lines 65-67 and column 3, lines 1-4), the samples being obtained by sampling a spread spectrum signal in a range of one symbol period with a over-sampling rate which is N-fold of a chip rate (column 9, lines 32-35 and 46-50, wherein  $N=2$ ), wherein N is an integer larger than zero, the spread code being L X M period per symbol (column 2, lines 2-8), wherein L and M are integers larger than one (column 1, lines 30-39, wherein one spread code time is 256), the spectrum spread signal having been spread in spectrum by the spread code signal (column 5, lines 21-23), the method comprising the steps of:

writing samples of a signal to M memories in rotation with a unit of L X N samples (Fig. 1, block 11, column 5, lines 54-67 and column 6, lines 1-2);

supplying the samples of the signal to M input terminals of an adder simultaneously with the step of writing (column 6, lines 7-10).

reading L X N samples of the signal which have been stored M-1 times (column 6, lines 7-10);

supplying the samples read in the step of reading to the input terminals of the adder (column 6, lines 21-25); and

outputting an output of the adder as a correlation signal (column 6, lines 25-27).

Sukuki does not disclose generating an intermediate correlation signal by using samples

However, Dabak et al. discloses an L-chip accumulator (Fig. 2B, block 220, column 4, lines 66-67 and column 5, lines 1-13) which inputs samples to generate and output an intermediate correlation signal (column 6, lines 42-46). The accumulator of Dabak et al. outputs an intermediate correlation signal to a device (Fig. 8) which outputs a final correlation signal (column 6, lines 42-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Suzuki with the teachings of Dabak et al. in order to give the device of Suzuki synchronization capability with transmission devices such as WCDMA devices. WCDMA is a technology with high transmission bandwidths which allows for relatively high data transference speeds. WCDMA can support mobile / portable voice, images, data and video communications up to 2 Mbps (local area access) or 384 Kbps (wide area access).

Regarding claim 18, which inherits the limitations of claim 17, Suzuki further discloses multiplying the samples supplied to each of the input terminals (column 6, lines 21-25) with a coefficients which changes cyclically in a unit of  $L \times N$  for of a period corresponding to the oversampling rate (column 5, lines 56-66), wherein the spread code are the coefficients which are also cyclically displace from each other one by one to an order of sampling.

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*Conclusion*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 703-305-4097. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Curtis Odom  
April 8, 2003



STEPHEN CHIN  
SUPERVISORY PATENT EXAMINER  
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